Industrial FINISHING

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Devoted to Product Finishing in the Factory

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Contents of this Issue

Letters from Readers of "Industrial Finishing" 4
Gold, Silver & Aluminum Bronze Powders 9
Product Design and Color 13
Air-Conditioning in Spraying Rooms 17
New Trends in Automotive Finishing 24
Questions; Answers 33
What's New 36
Aircraft Insignia on Commercial and U. S. Military Airplanes 42
Editorial 50

Ornamental Iron Work 16
Free Book on Bronze Powders 16
Metal Cleaning and Plating Booklet 16
Air Ducts Spread Fire 22
Metal Toys 32
Industrial Vacuum Cleaner 32
Finisher's Book Free 32
Shoe Finisher's Book 38
Dust Bulletin Free 40
Metals, Plastics and Finishes Exhibit in New York 40
Electrical Fixtures and Metal Lamps 45
Spraying Filler 49
Roxalin Opens Detroit Office 55

"Classified Advertising" Section 55
Advertisers' Index 56

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Letters from Readers of "Industrial Finishing"

The names and addresses of firms or individuals whose letters and inquiries appear in this department may be had by writing this office, or letters addressed to them in care of this office will be forwarded promptly.—The Editor.

Coloring Pressed Steel; Pearl Essence

On page 6, May issue of your magazine, there is an inquiry for coloring pressed steel parts, by F. S. C., Industrial Engineer. We believe this inquirer would find our Jetal Process of interest, and we would appreciate if you would send us his address so we can communicate with him direct.

On the same page we also note W. P. Co. (Poker Chips, Golf Tees, etc.) is inquiring about pearl essence. We supply this product and would also like to get in touch with this company, if you will be kind enough to give us their full address.—Alrose Chemical Co.

What Causes Pitting?

May I inquire of various causes and prevention of pitting in high-gloss, black, baking enamels during hot sultry summer weather?—G.W.C.

Lacquer Blushing and Metal Cleaning

I have been advised that you have published several articles on lacquer blushing and metal cleaning preparatory to painting, as well as other articles that are related to good finishing of automobiles. Will you be kind enough to send me your issues containing these articles and oblige?—R. C. Stores, Inc. (Furn. Mfr.).

Crack Filler Makers; Sandpaper Holder

On page 52 of your May, 1935, issue, the following firms are listed as selling Crack Filler that does not soften under lacquer.

1—The Gilbert Spruance Co.
2—The Savogran Co.
3—San-Itai-Rie Filler Co.

We are wondering if you would give us the addresses of these firms so that we may write and inquire further into this matter.

On page 59, in the "Out of the Drum" column, you mention a sandpaper holder which can be purchased for 25c. We are wondering if you will advise us where this can be obtained.—H. S. J. Co. (Founders and Finishers).

EDITOR'S NOTE—The addresses of the first three manufacturers are:

1—Tioga and Richmond Sts., Philadelphia, Pa.
2—India Wharf, Boston, Mass.
3—931 N. Ogden Ave., Chicago, Ill.

The sandpaper holder is made and sold by Landon P. Smith, Inc., Mountcastle St., Irvington, N. J.

Rust-Resisting Paint

In your April issue of INDUSTRIAL FINISHING, under the heading of "Rusty-Surface Paint," you say that you have the names of several manufacturers who make a rust-resisting base. We have scraped our water tower and we are looking for just this sort of material. Will you please send us the names of these manufacturers.—L. B. & Co. (Table Slides).

Finishers' Book

Please advise us where we can secure a manual on touching up damaged finishes, to be used by our finisher. If you do not have such a book, please send us tear sheets on

COLOR - - - -

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articles of touching up damaged finishes that would ordinarily be used in a furniture store.—S. Clothing & Furniture Co.

Magnetic Holder for Parts in Process

In one of your more or less recent issues was an article headed "Perpetual Motion? No! Non-touch Support? Yes!", which indicated a demand for means of supporting small articles while they are being finished.

I have a magnetic holder which accomplishes satisfactorily the object desired, and it is being used by two manufacturers with which I am associated in Europe. I am in a position to license, on reasonable terms, someone that may be interested in manufacturing and distributing the device in the United States.

If you know of any such person, I shall be pleased if you will have him get in touch with me as soon as possible, as my stay in this country is somewhat limited.—E. C. Weeks, Hotel Woodstock, New York, N. Y.

P. S.—One of my companies, the Etablissements Weeks of 1 Rue Ambroise-Thomas, Paris, has been a subscriber to your publication for several years.

Auto Refinishing Supplies

Will you kindly furnish us with the names and addresses of the firms manufacturing items in which we have become interested, through reading your INDUSTRIAL FINISHING magazine?

1. Flexible Rubber Lacquer.
2. Portable Air-Driven Sander, as described by H. E. Payne.
3. Steel Wool Bak-Bone Pads.
4. Kelsanite Rubber Coating.
5. Holder or hand block for sandpaper rubbing, as described on page 59, of the May issue.
6. Screen Process outfits in which motor car dealers can apply their own names to tire covers.

Can you also give us names of firms manufacturing a good rubbing or cleaning compound for compounding automobiles?—L. W. F. (Automotive Reconstruction).

Drum Cleaner

In your INDUSTRIAL FINISHING magazine of February, 1935, page 24, you describe a drum cleaner—a device that rolls the drum to be cleaned in either horizontal or semi-vertical position. I have scanned several of your issues but do not find

an advertisement on this item. We would appreciate it very much if you would give us the name and address of the manufacturer of this machine. —D. H. Novelty Co.

EDITOR'S NOTE—This is a product of the Vol-U-Meter Co., 710 Ohio St., Buffalo, N. Y.

Tack Rags

Please send me the address of a manufacturer or dealer in tack rags, and oblige.—G. R.

We have noted your article in the May issue on "Tack Rags" and desire information regarding tack-rag varnish, as to where we may secure the same, etc.—G. Stove & Oven Co.

Plating Books and Plastic Book

I find your INDUSTRIAL FINISHING magazine most interesting and do not miss a single copy. Would it be possible for you to tell me where I can get booklets or reference books on the metal plating process from beginning to end. I am interested in Chromium, Cadmium, etc.

On page 28 of the May issue, there is a note concerning a Plastic year book for 1935. Where can I get this book and what is the cost?—H. M. B.

Metal Cleaning

Kindly send us the names and addresses of firms or individuals whose letters and inquiries refer to Metal Cleaners. We are enclosing a circular for your information.—Industrial Chemical Products Co.

More About Process to Harden Soft Wood

EDITOR'S NOTE—This supplements a letter published on this subject in June issue, page 43, in answer to an inquiry in April issue, page 6:

We thank you for your letter of the 28th, with reference to the matter of a hardening process for soft wood, pulp or paper. We have developed this process and have completed our articles of conception, but have not filed any application for patent. We do not wish to do this, preferring to connect with financial

(Continued on page 53)

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Gold, Silver & Aluminum Bronze Powders

by Otto A. Both
Otto A. Both Corporation

How these powders are made, how to judge and test their quality for various purposes, what liquids to mix with them and why, where and when to use them, how to preserve their luster and increase their durability, what colors can be produced, what effects are obtained when they are mixed with colored enamels, and what trends are noticeable as to their modern development and latest uses.

■ ■ ■

THE BASIC METAL of gold bronze powder consists of pure electrolytic copper and zinc and aluminum ingots of practically 100% purity. Aluminum bronze powders are made from pure aluminum ingots. Powders from genuine gold and silver are also made, but these are too expensive for general commercial purposes at the present time.

Metals used in the manufacture of bronze powders must be of uniform softness, so that when they are in the pulverization process they will be soft enough to be hammered into tiny flakes. These flakes pass over screens which separate them into different grades according to their size. Then the powder goes into polishing drums where, theoretically, each flake gets a thin coating of polishing lubricant. After bronze powders leave the hammering machines they are very dull, with no sparkle, so the polishing process is very important. The metal flakes are polished from 8 to 16 hours with stearine and various other polishing mediums, depending entirely upon the uses for which the powder is intended. This operation gives the powder its "leafing" properties — that is, when it is mixed with bronzing liquids the flakes float to the surface.

Silver bronze powders are made from tin and German nickel, and various alloys thereof.

How to Tell Quality Powders

Quality in bronze powders depends upon the purity of the basic metals, and upon the method of manufacture. Genuine bronze powders cannot be produced by a grinding or milling process; they are the result of a lengthy hammering and sifting process, followed by air-separating and polishing. The chief difference between good quality and poor quality bronze powders is that the good quality powders will give

more flakes per pound, and consequently cover more surface.

Good bronze powders can be made only with stamp mills that are kept in perfect condition. The hammers, and the anvil blocks on which the hammer falls, must be ground to very close dimensions so that the flakes are pounded to the thinnest possible form. If there are any pits or small holes in the hammer or anvil block, angular pieces would be made instead of flat flakes.

Other differences in quality are in brilliancy, which is produced by polishing, and uniformity in the size of the flakes, which is controlled by the screening operations and air classification (floatation). Cheap bronze powders are made from scrap metals, the minute particles consisting of modified cubes, spheres, and irregular shaped particles, as contrasted with the flat, plate-like flakes of approximately .001-in. thickness to be found in good powders. The above-mentioned differences can be discovered by using a powerful magnifying glass or microscope.

Tests That Users Can Make

For those who wish to determine which of several bronze powders have the greatest covering capacity as to area, a simple test is to take a given quantity of each, say 1-oz., and carefully pour it into a glass test tube; then observe which one of the powders in question rises highest in the glass. That powder having the greatest bulk will be the one that will cover the greatest area.

A simple test for leafing or filming characteristics can be made by taking a small knife blade load of each powder and dropping it into a shallow glass dish containing a small quantity of high grade varnish or ordinary bronzing varnish. The powder that films or spreads over the greatest amount of surface in the dish will be the best.

Time tests for tarnishing, screen tests for fineness, and tests for the polish or brilliancy and clearness of tone, can only be determined by the experience of the tester.

Bronze powders, when not in use, should be kept in a covered container to keep out dirt and other foreign matter. It is not necessary to keep the cover airtight except in a very dusty place. The powder should be stored in a dry, warm place.

Mix and Use Immediately

Bronze powders will keep forever in powder form when stored in their original containers in a dry place. They should never be mixed with varnish or lacquer, and stored. The polishing agents used on bronze powders will be quickly destroyed by the wetting agent and diluent in the lacquer or varnish, when in mixed form for more than three to six hours.

Practically all users of bronze finishes agree that it is much better to make the bronze paint in small amounts as needed. All bronzes lose brilliancy after being mixed for a period of time. Different vehicles react in different degrees with the bronze powders. With some liquids, only enough material should be mixed to last a few hours; with other liquids, a day's supply can be mixed. However, with all liquids—the fresher the paint, the better it will work.

A rosin varnish is all right for cheap inside work—on such prod-

ucts as radiators and piping, and for cheap metal novelties and toys, but it should never be used where high quality work is desired. The proper vehicle for bronze paints can be purchased from any reputable manufacturer. The manufacturer will recommend the best liquid for any customer's specific use. Turpentine should never be used as a diluent for gold bronze powder.

How Picture Frame Finishers Use Bronze Powders

Picture frame manufacturers use special grades of bronze powder and a special vehicle for finishing their wood mouldings when they are to be burnished. The mouldings are given an undercoat consisting of several coats of whiting, glue sizing and burnishing clay which is sprayed on and sandpapered down very smooth. A grade of powder termed "Burnish Bronze Powder" is then mixed with alcohol to make a fairly thick paste. This mixture is then thinned with a high grade, well cooked, thin, transparent glue, or egg albumen, so that it will be just thick enough to cover nicely when sprayed on. When this is dry, the finish is burnished with an agate. Then it is sprayed with a clear lacquer, which will prevent any further change in the finish for an indefinite length of time.

When a bronze powder finish has been applied with a varnish or lacquer liquid, it cannot be buffed or polished like solid metal. However, sometimes finishing coats are applied over the bronze powder coating, after which the resulting finish can be hand rubbed or polished with a wax solution, just the same as automobile finishes are rubbed and polished.

Protection for Outside Service

It is necessary to use a better grade of bronzing liquid for outside service than for inside work, because of weather conditions. Generally the only tarnishing or discoloring that occurs in bronze powder finishes arises in outside work. Gold bronzes, and to a lesser extent silver bronzes, will tarnish if used for outside finishes where they are exposed to the weather. This is caused by oxidation of the metal; it can be prevented to some extent if a clear coat of varnish or lacquer is applied over the coat of bronze paint. Aluminum bronzes are the only ones that will not tarnish if exposed to the elements. However, they will get dirty with age, but can be washed if the proper vehicle is used.

Varnish and Lacquer Type Bronzing Liquids

When bronze powders are mixed with varnish types of bronzing liquids, and then applied to the surface to be painted, the flakes of powder float to the surface of the liquid; this is called their "leafing properties." The liquid, when it dries, merely serves as a binder to hold the flakes of powder to the surface of the article. As long as the liquid holds up, the metallic finish will hold up. If the metallic powder is mixed with a clear lacquer, then the operator must handle it just as he would handle a colored lacquer or lacquer enamel. Most lacquers are sprayed because they dry too quickly to brush or dip.

If mixed in a varnish-type liquid, then the bronze paint corresponds to standard colored enamels or paints, and it can be applied by spraying, dipping or

(Continued on page 46)

One of the exhibits at the Ford Building, San Diego, Calif.

This exhibit demonstrates the mixing of color pigments in the four glass jars shown on the table in the center of the booth. The liquid in the jars starts out clear and, due to the chemical reaction of the pigment, changes color. The wall decoration demonstrates that color comes from white light after it is broken down by the action of a prism.

The wall decoration to the right of the color booth is for the glass exhibit where safety glass is made and tested for breakage. The "GLASS" on the wall is formed by letters cut out of cracked pieces of safety glass showing that safety glass will not shatter when it is broken.

The Ford Building and its exhibits were designed by Walter Dorwin Teague.

Product Design and Color

by Blaine Stubblefield
Industrial Designer

The way things look is what makes them sell.

THE SIMPLE fact, stated above, is the basis on which the modern design movement of the last five years has brought large sales increases to many manufacturers. Big merchants like R. H. Macy and F. W. Woolworth have found a large and increasing proportion of the buying public accepting modern design in the things they buy and use. A leading New York hotel, by asking incoming guests their preferences in room interiors, found that 40% to 60% have gone modern. It is safe to say that more than half of the public are converted.

Because art for machine production is new, not more than 25% of U. S. manufacturers have realized the selling power of design, and grasped the opportunity. Yet nearly all of those who have properly styled their products have realized substantial sales increases. Case histories of successful results appear constantly in trade publications.

There is a definite opportunity in design for the finishing industry. Modern design is more than skin deep; it works from the inside out, devising a more logical relation of part to part, giving more compact form, making things handier, easier to keep clean, cutting costs where possible by better selection of materials, and by simplification of processes. But the final objective of this "engineering-artistry" is clean-cut line, form, and color that give pleasure to the eye and stir the possessive urge.

Color; Texture; Surface Protection

Color is the thing — color and texture and surface protection and durability. In design, these factors make the finish of the job. And what is a job worth without good finish? Thus the wide range of finishing possibilities offered today is one of the important "tools" that designers have to work with.

There is a trend in modern design that may seem disturbing to the finishing industry. I refer to what designers call "being honest with materials." They use metal frankly as metal; they use wood frankly as wood; etc. In other words their principle is to use ma-

terials unfinished, in their natural naked beauty.

Designers have a good reason for this theory, but there is not much danger in it for the finishing industry. Let me explain:

Miracles of Chemistry

When, in the last century, chemists began to perform miracles with materials, people resented the change from the good old standbys—as they always do. A metal pillar in a hotel lobby, structurally and economically, was found to be a good thing. But it was brazenly new, and therefore in bad taste. It wasn't marble. It was a cheap substitute. The customers didn't like it. So chemistry performed another miracle . . . made the metal pillar look like marble. You couldn't tell it from marble unless you tapped it with your pen knife.

When the furniture people found that sheet steel made a good business desk, that, too, was bad. It wasn't wood. But the finishing chemists made it look just like wood. My point is that people had lived with natural materials and handicraft time out of record, and they resented synthetic materials and machines as a substitute makeshift. . . . Imitations went on and on. Recently one company actually achieved a line of plastic cafeteria trays that look like gingham and gay calico.

Through all of our past industrial era there was little effort or thought toward injecting art into industrial design. The Depression came, and industry began to search for selling ideas to meet competition. Some pioneering artists thought they had the right idea, and they became industrial designers. And as honest designers, they had only one word to describe our manufactured imitations of marble and wood and gold and what not; their word is "phony."

Manufacturers made imitations because the people wanted them. And a large portion, about half, of the undiscerning public still want them. But the reaction away from the gingerbread era is in full swing. Vast changes are under way, and the finishing industry wants to know where they lead.

Classic Design

There was nothing phony about Greek pottery, or Chippendale furniture, or Medieval steel armour, or Colonial utensils. These things were the honest products of the materials and the tools and the human skill that were at hand. They were classics. Modern design is the classic of the machine age. I don't mean "modernistic" bent tubing or "streamlined" kitchen sinks. Those are the faddish forms of a day. What I do mean is design executed in terms of machines instead of hand tools, so that the work of one artist can be duplicated in millions, at prices the masses can afford — design whose beauty is in its simplicity, whose only excuse for existence is the fact that it serves better than the old.

But, as I said, modern design is to be welcomed rather than feared by the finishing industry. One gets the impression that great volumes of products are being made of unfinished materials, but is this true? Restaurants and business interiors are done in various glazed-surface metals. Many household appliances, industrial machines, display cases, and counter screens gleam in aluminum,

chromium, copper, brass. But some metals will not retain their sheen without a clear, anti-oxidizing, finishing coat. Chromium and stainless steel and aluminum are expensive and cannot be used in great volume unless new developments cut costs.

Too large areas of sheer unfinished metals are cold and uninteresting, from the designer's viewpoint. Everywhere we see wood with the grain exposed, but most of it is elaborately finished. Upon closer observation, we find that designers are using very little material completely raw. It is true that the increasing use of glass and especially plastics for interiors, fixtures, small products, and parts, is cutting into the finishing trade. But losses are often blessed with compensations.

Color in modern design is the blessing to the finishing industry. Modern design, by reason of its almost severe simplicity, and by reason of its honesty-with-materials theory needs color and gets it.

George Switzer designed a bathroom clothes hamper in aluminum, but he made the inside of it red. "Nobody would want to live with a red hamper," he said, "but every time you open this one to throw in a towel, you get a little thrill." That is an example of reserved good taste in modern design.

Color Gives Life to Form

The golden promise of modern design to the finishing industry is summed up in five words by the Harmon Color Works in their display in the Ford Motor Company's building at the San Diego Fair—"Color gives life to form."

To see that modern design is full of color and finish, one need

A new oil burner for the home, styled by Lurelle Guild, industrial artist and designer; finished in fire engine red, with aluminum trim; a product of the National Radiator Corporation.

but step into a Woolworth 10 & 20. Woolworth's merchandise is far in the lead in volume of modern design, probably because of the rapid development of new products due to low cost. The packages, toys, kitchen gadgets, small tools, stationery, jewelry, pottery, glassware, enamelware, fabrics—all are bright with color. There is a vast amount of modern merchandise in R. H. Macy's world's biggest store. You can see the rise of the modern mode in Sears-Roebuck at Danbury, Conn.; at May's in Cleveland; at Frederick & Nelson's in Seattle; at the Emporium in San Francisco. What the big cities do, the little towns soon do likewise.

Vahan Hagopian, a leading designer retained by Anaconda Copper Co. and other large concerns, points out another fact of interest to finishers. Modern design likes

to deal in a certain amount of sheer surface, but this practice will always be retarded by practicality. Any corrosive or accidental damage on sheer and unadorned metal surfaces, except copper alloys, spoils its sheen, which is hard to restore. The copper alloys, he says, can be preserved with a lacquer finish, or they will preserve themselves with their own permanent film, assuming a different color, of course. Various decorative and mottled or shaded effects on the ferrous metals tend to hide any flaws or damages, and if such damage does occur, it is easy to repair.

Future Design and Finish

Now, as the old styles in design, with their great finishing requirements, lose ground to the modern motif, with perhaps equal but different finishing demands, how can the finishing industry find its new opportunities?

The answer is simple to state, and not very hard to act upon. The best way to sell a material is to show it to best advantage in fabrication. The main objective of design is to show things to their best advantage. Therefore a good designer is the man to help this industry sell its products. The designer, with his trained visualizing powers, can take a given manufacturers' product and show him how to make it better and better-looking with the finisher's product. This country is full of able designers with all kinds of special abilities, who want more work.

Editor's Note: Another article on Industrial Design will appear in an early issue — probably in August. Your comments on this subject are invited.

Ornamental Iron Work

FOR A FINISH on ornamental iron work such as steel railings, fencings, window sashes and gates, I have in mind a material that is more durable and will outlast paints by an average of 300% as based on experience in actual use. It has the following physical characteristics:

Is made in 20 standard colors, including black, white and transparent; has a drying time of four to six hours. Covering capacity, minimum 600-sq.ft. per gallon; excellent resistance to water, fumes including solvent vapors, alkali, alcohol, strong soaps and scouring powders. It is permanently non-brittle with a resistance to abrasion 70% greater than a good quality of oil enamel; gives a high gloss finish; the film is not attacked by the agents which destroy ordinary paint enamels. It can be used for interior or exterior service. When it is to be used for exterior service, you should so specify, as it requires a different formula when exposed to the elements.—J. E. GREENE.

Free Book on Bronze Powders

The O. Hommel & Co., 209 Fourth Ave., Pittsburgh, Pa., has published a small but very interesting and informative booklet entitled "The Why and How of Bronze Powder" by O. Hommel. Mention INDUSTRIAL FINISHING magazine when writing for a copy.

Metal Cleaning and Plating Booklet

Methods and equipment for metal cleaning and electro-plating are illustrated and described in a new and attractive 16-page booklet (page size 8½x11-in.) just released for distribution by the U. S. Galvanizing & Plating Equipment Corp., 27-41 Heyward St., Brooklyn, N. Y.

Air-Conditioning in Spraying Rooms

by Carl W. Sanders
Engineer, Binks Mfg. Co.

Editor's Note: After having read what appeared under the above title in March, April, May and June issues of Industrial Finishing, Mr. Sanders felt the urge to add something to this very timely discussion.

Mr. Sanders advocates an enclosed, air-conditioned spray booth, supplemented by a drying oven to dry the finish quickly and move it on its way, as in automotive line production, and he gives strong reasons for such installations.

Suggestions, comments or articles from others interested in air-conditioning part or all of the industrial finishing room will be welcome.

WHETHER a factory's output consists of wood or metal products, or whether the finish coats are lacquer, varnish or synthetics — temperature, humidity, and dust are and always have been important controlling factors in producing quality finishes.

Spirit stains, shellacs, and lacquers gained popularity chiefly because of their quick-drying qualities.

Water stains, oil stains, fillers, varnishes and synthetics, have always slowed down production.

Air conditioning, if I understand the scope of previous articles on this subject in INDUSTRIAL FINISHING, refers to the tempering of air in an entire finishing department. If I am correct in this assumption, then the thought in my mind may be worth consideration.

The rapid progress in the use of synthetic enamels on automobile finishes, has brought in its wake a demand for better finishing room conditions. Clean air is all important, for dirt particles on a finished surface can not pass inspection. Water washers and air filters, unless they are installed under certain conditions, seem inadequate in coping with the dirt problem.

Experience and numerous changes in size and location of equipment, finally have permitted a scientific solution of the dirt problem. The practical results, while not perfect, are controllable

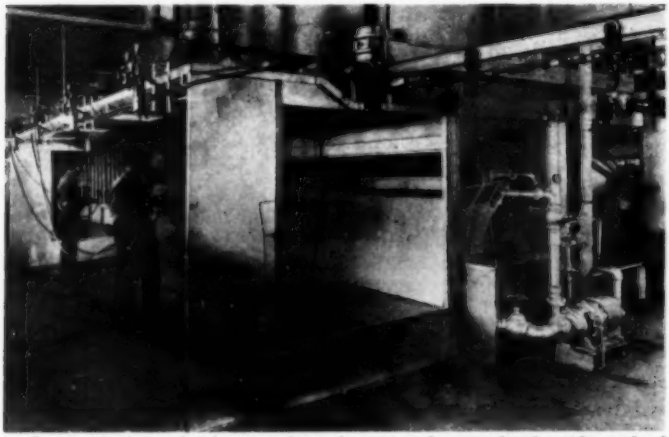


Fig. 1—A glass-enclosed, air-conditioned, water-wash spray booth, with overhead conveyor which brings in, supports, and takes away the parts being finished. A modern installation for continuous, rapid, economical, line production . . . . in the plant of Edison General Electric Appliance Co. Two other views of this installation appear on page 40 of June "Industrial Finishing."

only through exercising care in cleanliness and personnel.

Conditioned Spray Booths

Spray booths with carefully planned air currents and exhaust fans, are enclosed with dust-tight walls and ceilings, leaving openings only for the entrance and exit of work. The enclosures are kept under a positive pressure of clean, tempered air by forcing in a slightly greater amount than is withdrawn by the exhausts in the spray booth.

By following this practice, rather than permitting the finishing room air contents to enter the booths, there is a possibility of keeping slow-drying materials dust free during the spray operation. The air movement, caused by spray booth exhausts, will always create a sufficient agitation of air in a large room to keep dust molicules in suspension. Washed air may be forced into a big room, but experience has shown that it will not stay clean.

So much for keeping work clean in the spray booth; but what can we do to keep it clean while the finish is drying dust free?

When we consider the proposition of air conditioning an entire finishing room, we should first consider air conditioning on a small scale, but from a different angle. Work, leaving a dust-free spray booth, should enter a high-temperature oven, where in one hour a perfect drying condition will do what 24 hours sometimes fails to accomplish when air conditions are wrong.

Just at this point, I know from experience, the old alibi pops up! "Too much money! It means a conveyor and what not." *What it really means, is a finishing room of enormous capacity occupying less space.*

● "CREW-ZER"

by

Structo Mfg. Co.

Finish by

ROCKFORD VARNISH CO.

A sparkling finish in brilliant colors helps to make the "Crew-Zer" a favorite with the youngsters. It's a snappy looking, streamline job . . . and it's going places in sales.

You'll find the "Crew-Zer" a "stand-out" among the playthings displayed in leading stores. It has eye-appeal plus, because of its smart styling and excellent finish.

The makers . . . the Structo Manufacturing Company of Freeport, Illinois . . . employed the services of our creative studio . . . just as you can, for the solving of your finishing problems. There is no charge or obligation to reputable firms for this service. Write for details.

"No Tampering with Quality"

Rockford Varnish Co.

ROCKFORD, ILLINOIS

Conveyor Ovens

An oven suitable for some types of work, with the necessary conveyor, may involve a considerable outlay. On the other hand, many installations could be made with a very small outlay. Many types of work can be handled in ovens with overhead, or floor-type, self-contained conveyors, very similar to the old box-type ovens.

The continuous conveyor is by far the most practical in that it eliminates unnecessary handling. Where this type of handling can be considered, oven temperatures can be regulated according to length and speed of chain, as well as material requirements. An oven, to be efficient, must maintain even starting and peak temperatures, and ventilation should insure frequent changing of air content.

Force Drying; Humidity Washed Air

Many force-dry operations have failed in their purpose simply because of defective design in the installation. Force drying does not mean heat alone. Oil primers, varnishes, and synthetics require frequent air changes. It is reasonable to assume that hot air, saturated with fumes from which oxygen has been absorbed, can not compete with clean hot air rich in oxygen.

The luster of the finished product and the texture of the finish can be easily destroyed by poor oven design and lack of ventilation. Air conditioning for the booths and ovens alone, does not involve the outlay in funds required to air-condition an entire floor or building, that is, if humidity is actually to be controlled.

Washing air through water sprays will wash out dirt and reduce high air temperatures to within a few degrees of the water temperature. Unfortunately it is humidity that we must control for comfortable working conditions.

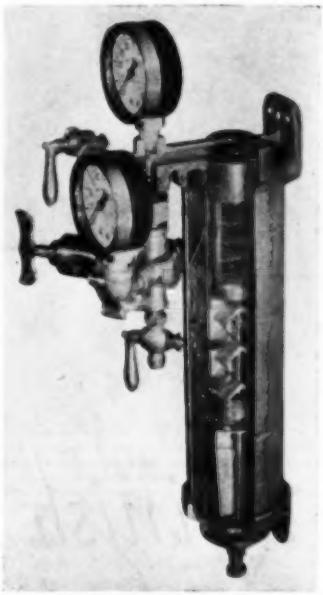
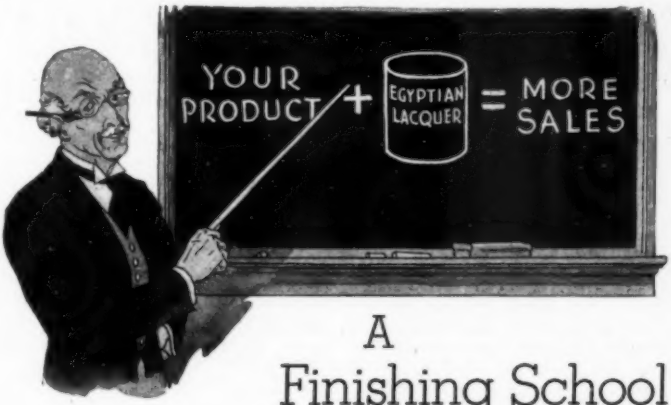


Fig. 2—Cutaway view of one of the oil-and-water extractors used on the installation pictured in Fig. 1; a valuable asset to the spray-painting line because it is an effective and dependable means of insuring clean compressed air to the spray guns.

Dehumidification requires refrigeration or absorption. Both processes are quite out of reach, if my past experience is any criterion on what money will be appropriated by the management for such work.

Air conditioning, in a general way will improve working conditions but when the management asks, "How long to pay out?" . . .



A Finishing School for Your Product

YOUR product is good . . . it is well-made . . . it has a lot of utility value. But, somehow, it isn't quite popular, quite as eagerly sought after, as you thought it would be. Something is wrong.

Has it occurred to you that your product may lack "personality" . . . that it may have an "inferiority complex"? (There is nothing more deadly to sales.)

Maybe Egyptian can help. Our job is to add the finishing touch to products—of all kinds—and to make them more appealing and desirable. While so doing we also fit these products for the wear and abuse of modern living.

Incidentally (not *too* incidentally) we seem to have a way with backward products . . . some of our most bashful beginners now rate a pretty high I. Q. (which in our language, means "It" Quotient). The sales records prove their popularity.

The cost of our treatment is much less than you probably imagine . . . perhaps less than you are now paying for mediocre finishing materials. Just write or phone for further information.

EGYPTIAN · LACQUER

THE EGYPTIAN LACQUER MFG. CO. ● 90 WEST STREET, NEW YORK

the answer will more than likely be, "No."

What It Pays More Than What It Costs

It is surprising to discover just what can be saved through the installation of continuous conveyor systems as compared to the handling or trucking methods. *Often times the amount of money tied up in merchandise in process, standing in banks between coats, and in final drying rooms, is from two to five times the amount of money involved in a well-balanced, completely mobile continuous system.*

Freedom from dirt, standard uniform temperatures, unbroken delivering schedules—all are within your reach. Investigate the cost and compare same with the investment in stagnant lots of merchandise tying up your money, and you may be surprised. Then compare the savings in labor and the investment in your current inventory—for certainly the speeding up of production, even for 24 hours of drying time, is a day's output and a corresponding investment reduction.

Modern equipment in far-away places—a seaman on the "Seth Parker" paints her davits with a portable spray-painting outfit. The far away place is the Pacific Ocean between the Galapagos and the Samoan Islands. (Courtesy of The DeVilbiss Co., Toledo, Ohio)

Air Ducts Spread Fire

The fire hazards of ventilating systems lie principally in the ducts through which smoke and hot gases can quickly spread from one room to another. Some of the ways in which air ducts may assist in the spread of fire are the following:

1. Fire may originate in combustible material located close to the fresh-air intake from which burning gases and hot smoke will be discharged into and ignite combustible material in various parts of the building;

2. Burning gases may enter a ventilating opening in one room and be carried through the duct into other rooms;

3. The duct may get sufficiently hot from the hot gases passing through it to ignite woodwork or other combustible material in contact with or not properly separated from it;

4. The duct may be ruptured by an explosion or by falling debris permitting fire to enter the duct and come out at the discharge outlets in other rooms;

5. With a recirculating system, hot burning gases from a fire in one room may be drawn back to the fan and be discharged throughout the building.

Ducts which carry flammable vapors, dusts, or other materials present an additional source of fire hazard in the burning of the materials in the duct.

The possibility that ducts will serve as a means for the rapid spread of fire can be greatly reduced by giving proper attention to the construction, installation, and protection of the ducts. One of the most important items in connection with the protection against spread of fire is the installation of suitable fire dampers at duct openings through fire walls. Because of the rapidly growing use of air-conditioning systems it is desirable to have a standard covering the features related to protection against fire hazard.—E. W. FOWLER, National Board of Fire Underwriters.

ECONOMICAL COVERAGE

BY SPRAY OR DIP

UTILITY Lacquer Enamel is so concentrated that it takes nearly an equal quantity of thinner. And it is low priced to begin with.

Because of long flow, it dips without streaking on long and unusually shaped articles. Sprays without orange peel.

Covers solidly. Adheres to wood or steel. Send for chart of colors with "sales appeal."

Thinners That Cut Quickly

The line includes a thinner for every use. Each one is moderately priced. Mention requirements for quotation.

JAMES B. DAY & CO.

1872 CLYBOURN AVE.

CHICAGO

UTILITY

LACQUER ENAMEL

New Trends in - - Automotive Finishing

by E. W. Windsor
The Sherwin-Williams Co.

THE QUESTION is often asked as to whether or not lacquer thinners can be safely employed for reducing synthetic enamels. While they are entirely soluble, their use more or less represents an economic waste because the cotton solvents incorporated into a lacquer thinner are not necessary in a synthetic reducer. That accounts for the difference in cost. Furthermore, the use of a lacquer thinner for reducing synthetic enamels is likely to cause raising of the film underneath—the only exception being where synthetic enamels are being applied directly over an old lacquer finish. In this case, slightly better penetration and adhesion are obtained where synthetic enamels are reduced to spraying consistency with a good, slow-drying, lacquer thinner.

I strongly urge you to use the reducers recommended by the manufacturer of the synthetic finishes you are using in your shop, to avoid unnecessary troubles and to secure the very best finished effects. Remember also that the thinner should be added to the enamel gradually rather than by "dumping" it in.

Repair Finishing; Sanding

Because synthetic enamels can-

In Part I of this article, which appeared in June issue, pages 16 to 20, the author discussed several interesting features, among them being: What synthetic finishes are, how they differ from pyroxylin lacquers, where they are entering the automotive industry, why they are so effective in refinishing over old finishes, how to spray them, how they dry, and what luster they show.

★ ★ ★

not be successfully touched up or spot-repaired like lacquer, both the production and custom shops have found it necessary to respray the entire panel. The only way that such a procedure can be eliminated is through the medium of a portable baking lamp, of which there are one or two promising ones on the market today, which will quickly radiate a temperature as high as 250°F. at a designated spot, softening up the original baked synthetic enamel finish and causing the new material to weld in perfectly with the old.

While synthetic finishes do not

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and TERRE HAUTE, INDIANA

Feather-edging a spot repair job before applying metal primer or spot glaze.

require as much sanding because of their better filling and building qualities, nevertheless it is worth noting that the finer grades of sandpaper should be used, as coarser grits and too much "elbow grease" are sure to produce sanding scratches that will show through the final finish and become magnified by the high natural gloss of the enamel.

Coating Galvanized Metal

Wherever it becomes necessary to coat either galvanized iron or galvannealed metals, a special primer must be employed to insure a satisfactory bond over a period of time on outside exposure. This calls for a specially formulated zinc primer, which will weld itself to the zinc coating on the metal, and prevent the powdering of the zinc dust that takes place where the usual type of oil primer is used.

Wherever blues or reds are used, their life can be extended considerably through the use of the correct synthetic finishing clear. In fact, the right kind of a clear will add several months durability to any color, but particularly the reds, blues and light tints. The only case where a clear should not be used is over white, as this will cause the white to yellow on exposure, whereas the white without the clear should be self-cleansing because of its gradual chalking.

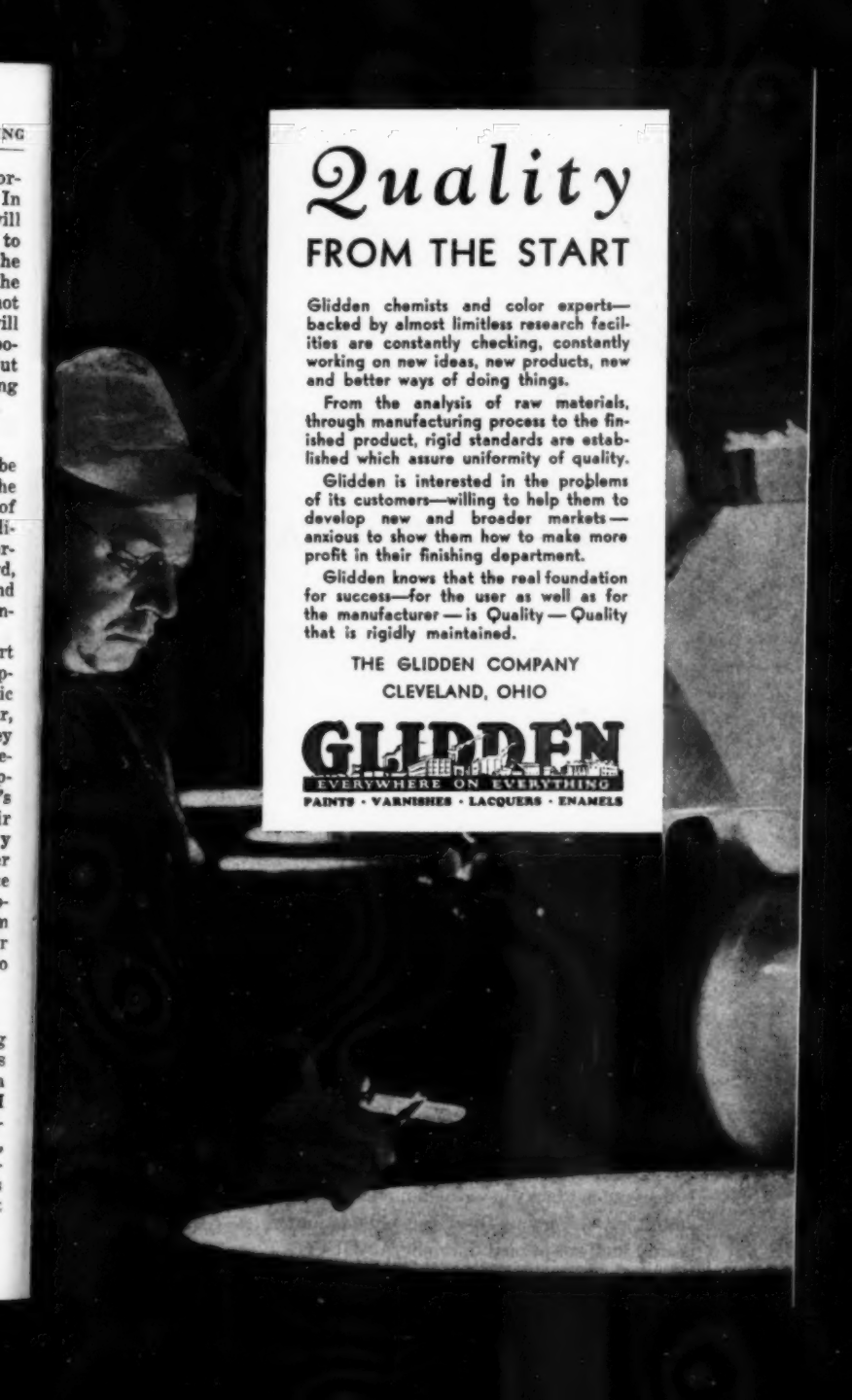
Clear Finish Over Colors

The clear, however, should be applied within 48 hours after the application of the last coat of color, under normal drying conditions. In other words, do not permit the enamel to become too hard, as otherwise the maximum bond between the enamel and clear cannot be obtained.

I have devoted the major part of this article to the use and application of the so-called synthetic finishes, because they are newer, less is known about them, and they are generally of more interest because new technique in their application is required. The trade's acceptance of synthetics and their ever-increasing use naturally brings up the question whether or not they will ultimately replace the use of lacquer in both the motor car production and custom shops. I do not believe it will, or at least not for several years to come.

Future of Synthetic Finishes

It is very probable that the "Big Three" motor car manufacturers will adopt baked synthetics as a standard production finish, but I do not believe that the other manufacturers, with a smaller output, will make this change. Any saving in labor or material costs compared with lacquer would not


Quality
FROM THE START
Glidden chemists and color experts—backed by almost limitless research facilities are constantly checking, constantly working on new ideas, new products, new and better ways of doing things.
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Glidden is interested in the problems of its customers—willing to help them to develop new and broader markets—anxious to show them how to make more profit in their finishing department.
Glidden knows that the real foundation for success—for the user as well as for the manufacturer—is Quality—Quality that is rigidly maintained.
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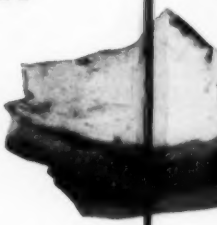
your furniture



Use **DUCO** *and avoid orange peel*

IF you want a lacquer that sprays easily, has good flow with absence of orange peel, and gives a smooth, full-bodied finish to your furniture, DUCO is the finish.

Furniture manufacturers all over the country say that du Pont DUCO Balanced Finishes have *everything* that goes to make the ideal lacquer. Not only does DUCO have ease of application, but it has unusual build, ease of rubbing, a maximum resistance to scratching and printing, and gives blush resistance. It does not get tacky in warm, humid weather, and it's waterproof. It is the outstanding beauty and exceptional durability of DUCO-finished furniture that ma it almo able of selling itself.

In the DUCO line the a lacq every surface need. Let us d strate can use both CLEAR a FLAT most efficiently and econom y on yo ucts. The du Pont represent ve will h develop a complete finishi ystem t save you time and money. I. du Nemours & Co., Inc., Finis Divisio mington, Delaware.

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NOTE THESE PROPERTIES IN DU PONT DUCO BALANCED LACQUERS

1. Print Resistant.
2. Extremely Resistant to Scratching.
3. Excellent Build.
4. Easy to Rub.
5. Easy to Apply. Good flow with consequent absence of orange peel.
6. Blush Resistant.
7. Outstandingly durable.

BALANCED FINISHES

be worth-while, against a limited production. It means a capital investment in new progressive tunnel baking ovens, air conditioning, etc. Furthermore, it is yet to be proved that synthetics have any better or longer durability on out-

Sanding gray surfacer.

side exposure than properly formulated pyroxylin lacquers.

As far as the repaint or custom shops are concerned, the majority of these are not in a position to make the expenditures necessary for a well-ventilated, dust-proof room. Then, too, their public demands the ultimate speed in drying that only lacquers can give, and also there is the fact that lacquers are still the only material that can be perfectly patched or spot-repaired.

Combination Lacquer-Synthetic Finish

I believe that the ultimate finish will be a combination of lacquer and synthetic, combining the advantages of each without the disadvantages of either. Such a product is now available for commercial use. It has the natural quick-drying characteristics of lacquer, which eliminates the picking up of dust and dirt in the film; and, because of its nitrocellulose content, it is perfect for spot-repair work. While the natural gloss is not as high as that of an air-drying synthetic, the gloss of a combination lacquer and synthetic is equal to baked synthetic finish such as we would find on the Ford cars, thus making it ideal for touching up.

While it does not have the exceptional build and covering of a straight synthetic, its actual film-forming material represents an increase of from 25% to 40% over the common automotive lacquer which, of course, gives the consumer a much greater value for his dollar, reducing the material cost per gallon.

Used in conjunction with specially developed sealers of an exceptionally high solid content, it is possible to apply but three coats in all over an old lacquer finish, and obtain a very good looking durable finish without the necessity of any sanding or rubbing—which you know represent the two most expensive labor operations in finishing motor vehicles.

Influence of Car Colors

Last year about 90% of the cars came through from the factories with fenders in the same color as the body, and on the 1935 models it is practically 100%. This is a very important factor. It stands to reason that the more cars that are on the streets and highways with colored fenders, the more touch-up work there will be, because it will not be possible for the average car owner to touch up scratches and dents in the fenders finished in the brighter col-

GOING STRONG!

New colors developed in our METALUSTRE enamels recently have made a big hit with many manufacturers of metal and wood products.

It covers well in one coat and gives a high grade lustrous finish at a lower cost than other decorative finishes.

IF YOU HAVEN'T TRIED METALUSTRE, SEND FOR INFORMATION ON IT TODAY

For use wherever lacquer or lacquer enamels are now being used. Supplied in a variety of colors.

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430 Riverside Avenue **Newark, N. J.**

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ors. In the days when black was the one finish for fenders, anyone could daub up a black fender with almost any kind of paint he might have around the house or garage.

Another important point in connection with the fenders being the same colors as the body is that it eliminates the expense and time involved in masking, and also changing color in your gun or tank.

When potential customers come into the refinishing shop, it is up to the refinisher to explain to them that he is in a position to give them the very latest in coloring and styling, to bring their cars up-to-date. They will find that coloring the fenders the same as the body has a tendency to improve the appearance of older

Spraying after sanding.

models, or at least make them less conspicuous if they do not happen to be the last word in stream-lining. Millions of motor cars and trucks are continuing to be operated longer than their normal life. The market for paint has been multiplying at a fast rate during the past four or five years.

Metal Toys

THE FOLLOWING procedure is used for a one-coat finish on metal toys and pressed metal novelties, with satisfactory results. It is very important that all metal surfaces be thoroughly cleaned of grease and other foreign matter. The particular finishing enamel used for this finish has the following qualities:

Application by dip or spray; no skinning over or settling in dip tank; gives a high gloss finish with excellent adhesion, hiding and coverage in one coat; it is heavy in body, takes a good percentage of thinner, gives a very hard mar-proof film, air dries in three hours, or may be baked at 200°F. for 30 minutes.—J. E. GREENE.

Industrial Vacuum Cleaner

The Breuer Electric Mfg. Co., 846 Blackhawk St., Chicago, Ill., has developed a complete, portable, vacuum-cleaning outfit, which includes a metal pressure tank that catches and retains heavy articles drawn in by the suction hose, thereby protecting the motored, ball-bearing fan from possible damage. An illustrated circular describing the new outfit will be mailed upon request.

Finisher's Book Free

Just out. A new revised catalogue containing valuable information and formulas on emulsions, polishes, abrasives, disinfectants, bronze lacquers, synthetic resins and waxes, adhesives, etching pastes, cutting and spraying oils, soluble oils, etc. Contains chemical tables readily accessible that the chemist and technical worker will find indispensable. Write to Glyco Products Co., Inc., 949 Broadway, New York, N. Y., mentioning INDUSTRIAL FINISHING.

Refinishing Billiard and Pool Tables

As the man in charge of wood finishing for a dealer in billiard tables in New York, I have a hard problem before me in regard to refinishing second-hand pool tables.

As soon as I get a second-hand table, no matter how old it is or how little it has been used, I must refinish it. Usually I start by washing the surface with a solution of lye water, then rinsing with clean water. When the frame is thoroughly dry, and repaired if necessary, I give the surface one coat of white shellac (not varnish). Since we have no special room in which to dry our finishes, I always use shellac, so the finish will dry quickly—in case a table must be shipped the same day.

Now the trouble begins—not at the time I finish my work—but a week, a month or a year after the work has been finished. The refinished surface turns white, so I must worry about how to bring back its original rich color. Of course, after much hard work, and by using alcohol and other means I can bring it back to its newly-finished condition.

Now I come to you asking your help, to tell me how and what to do in order that I shall not continue to have these troubles in connection with refinishing. I will appreciate your kind advice, as this is my daily bread . . . .—W. J. C.

Questions « Answers

In refinishing billiard and pool tables, instead of using lye water to remove the old finish, use a good varnish remover. A good remover can be made by adding a small amount of melted paraffin wax to 188-proof alcohol and then mixing the paraffin-alcohol with an equal quantity of benzole. Be sure to add the paraffin wax before you add the benzole. Shake well before using each time. The paraffin prevents the remover from evaporating, so that it will remain and do its work. This remover is inexpensive. A formula for five gallons of this remover is:

Alcohol, 188-proof	2½-gals.
Paraffin (melted)	1-lb.
Benzole	2½-gals.

To clean up this remover, wash the surface with alcohol. The job is now ready for any finish you care to put on it.

The reason your shellac turns white after the tables are placed in service is because you use a solution of lye water as a re-

mover, and the wood is still damp when you put the finish on. The chemical reaction of the lye and the dampness in the wood are causing your trouble.

To hasten the drying time of the finish, I would suggest that if you are brushing this work, you add about one part clear lacquer to about three parts of the shellac you are using. This lacquer-shellac finish will be hard and durable and it will dry rapidly. However, this lacquer-shellac finish must be used immediately after it is mixed.

To put a finishing touch to this work, I suggest you use fine steel-wool to lightly smooth the finish, and then wax it. If you use a spray, I suggest you use flat lacquer and wax.—T. R. NALL.

Time for Rubbing Furniture Parts

I wonder if it would be possible for you to submit the approximate time in minutes required to rub a Sheraton mahogany dresser base, size 48x21-in. top? This dresser has marquetry lines and is flat, having no carving on the surface at all. It is finished by staining, filling, coat of sealer, hand glazed, and three coats of clear licensed lacquer.

If possible, I would like to have the time separate on the machine rubbing (which we do by a portable, compressed-air rubbing machine) and hand rubbing. We want the time for rubbing the complete dresser base. If possible, we would also like the time in minutes for rubbing a bed of the same specifications.

I asked one of your advertisers if he had any data of this kind, and he said to write to you, as you could probably furnish me with a more varied experience than his firm could.—S. H. W., Pres. of R. Furn. Mfg. Co.

Without having more specific information about the materials, equipment and methods used, one can only hazard a guess in answer to this question. However, on the basis of my long experience in all phases of furniture finishing, I will submit some approximate figures in both machine and hand rubbing for both dressers and beds. The time periods given are what I would estimate for a first class rubbing job:

Parts Rubbed	H.R.M.	M.R.M.
Top 48x21	45	30
Two Ends	50	35
3 Dr. Fronts	40	25
Head Board	60	45
Ft. Bd. (2 sides)	60	45
2 Bed Rails	30	25

The column headed H.R.M. gives the time in minutes for hand rubbing; and the column headed M.R.M. gives the time in minutes for machine rubbing.

In some factories, of course, only the dresser tops and fronts, and the head and foot boards of the bed get what you might call a good rubbing. Dresser ends, and sometimes the fronts too, receive only about ½ the attention and quality of rubbing that is given the tops. In some cases, finishers are ordered to rub only enough to kill the gloss.

A foreman, or a real good rubber who knows his business and watches his lubricants (if he is oil rubbing), can cut rubbing costs. In this kind of work, skill and experience on the part of the workman count for a great deal. —E. W. BRUCE.

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Released by THE ARCO RESEARCH LABORATORIES
to THE ARCO COMPANY for production

Air Dries in Five Minutes.

Unusual Adhesion to Bare Metal.

550 Square Feet and more to the Gallon (Spray).

2½ Times Film Thickness of Lacquer.

One Gun Pass Covers Completely.

Hot Oil and Gasoline Proof.

Ready for Use. Positively Non-bleeding.

Present Production 2500 Gallons Daily.

One Gallon — One Dollar ($1.00) (Drums).

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What's New « «

New Air Cap to Spray Porcelain Enamel

The DeVilbiss Co., Toledo, Ohio, announces the new "No. 64 Air Cap," to be used with the Type MBC Spray Gun for handling porcelain enamel. This pressure feed cap is designed for high speed application, operating best at air pressures between 70 and 85-lbs., and fluid pressures of 10 to 18-lbs. The cap does not lose atomization with a reduction of width, and produces a wide, evenly distributed spray.

It is of the wide horn, twin jet type, with two auxiliary atomizing jets at the center. The wide horns eliminate the tendency of the material to build up, as it would on a narrower horn type cap capable of handling an equal amount of material. Although essentially a high pressure cap, the No. 64 may also be used with low pressure or gravity feed on such work as edging.

Sol-Klean—A Metal Cleaner

Sol-Klean is a liquid, sheet-metal cleaner for steel, aluminum, terne plate, galvanized steel, etc., containing phosphoric acid, compatible solvents and other ingredients necessary to produce efficient and effective cleaning, and to impart rust-inhibiting properties thereto. It is used to remove oil, grease, dirt, rust, oxide and, by destroying the rust-producing elements, it insures a firm bond for all refinishing material.

The solvent used in Sol-Klean is miscible in all proportions with water and acid, and also miscible in all proportions with all types of oils and greases. . . . The boiling point of the solvent used in Sol-Klean is 310°F. . . . . Its viscosity, or resistance to flow, is such that loss from flowing when applied to a vertical metal panel is reduced to a minimum. . . . Sol-Klean is non-inflammable . . . . it may be heated or applied to the metal while hot, without appreciable loss . . . . contains no alcoholic solvents . . . . no irritating volatile products to attack the tissues of workmen. A product of the Industrial Chemical Products Co., Sylvester and M. C. R. R., Detroit, Mich.

Air Pressure Regulator

The sensitive-valve-type air-pressure regulator, shown in this illustration, is designed for use on compressed air lines where it can be inserted in the line ahead of a spray gun, for instance, and adjusted to release air at a certain uniform pressure, regardless of variations and excessive pressure in the line. It is made of brass, has a thumb screw adjustment with wing lock nut, and lasts indefinitely because there are no wearing parts. Sizes ⅛, ¼ and ⅜-in. Manufactured by Central Brass Mfg. Co., 2950 E. 55th St., Cleveland, Ohio.

Automatic Aircoating Machine

The Paasche Automatic Aircoating Unit, illustrated here, is of the revolving-turntable type and is designed to coat top and bottom, as well as all edges of a metal tray used as a refrigerator accessory. It is equipped with six spindles to which are mounted three-prong removable carrying

VALUE *above* COST!

NOT by magic, but by using accepted standards as your "yard stick," you will find it possible to produce a *better* finish at no additional cost, with our "Unquestionable Quality"—Custom-Built finishes.

Lacquers, Sealers, Stains, Fillers, etc. Liberal working samples to convince you — write for them.

V. J. DOLAN & COMPANY, Inc.

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Wood Finishing Supplies

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For Coating Small Parts

(12 Inches or Less)

Use THE BARRETT *Filwhirl Enameler*

DON'T be startled when we tell you that this is the most economical and effective method for finishing certain articles—machined parts, castings, hair pins, eyelets, helical springs, spools and similar hollow objects, coated inside and out. The finish is excellent, no fatty edges. No waste of material. Investigate in a practical manner—send samples of your work to be enameled and returned to you with our recommendations.

The Leon J. Barrett Co.

Grafton Street Worcester, Mass.

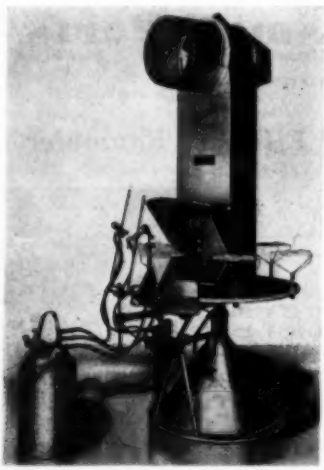
fixtures. which rotate and support these trays as they pass through the coating station.

The coating station consists of three automatic airguns, mounted on a newly patented radial oscillating-action adjustable gun mounting, with hose, regulators, gauges and spray booth.

The flow of material from the air-brushes is under constant control. Material is sealed automatically and cannot harden or set in the airguns, regardless of whether they are shut off for only an instant or for several hours.

An ingenious automatic device, synchronized with the revolving table, turns the airguns off and on instantaneously as each piece comes into range and again passes out of range. A patented oscillating device keeps all airguns centered on the object being coated to prevent over-spray and waste of material.

The machine is complete with fireproof exhaust and ventilating unit ready to attach to the air and power supply. It is also equipped with variable speed electric motor or air-motor drive with automatic oiler and silencer to operate at speeds of 1, 2, or 3-r.p.m.



Automatically enameling kitchen utensils.

Thermo Plastic Cement

This is a pyroxylin product which dries very quickly. Can be used as an adhesive on radio cone paper, so it will stick to the spider. It can be applied by hand brushing, air brushing, or pouring. This product has been tested and approved by several of the larger manufacturers; made by The Gilbert Spruance Co., Philadelphia, Pa.

Superflex Leather Clear Lacquer No. 20914

A clear transparent lacquer-base material for use on leather is announced by C. W. Haynes Laboratories, Inc., West Springfield, Mass. It possesses extreme flexibility and unusual adhesion; will not crack white nor show white upon continued creasing; is extremely long in life; dries rapidly, drying to a wax-like gloss; requires thinning with lacquer thinner No. 1665 in about equal parts for spray application. This particular product is being used by a large number of concerns in this country and abroad, being used on riding boots, high grade leather books, purses, valises, brief cases. . . .

Shoe Finisher's Book

A new book, "The Shoe Finishers' Guide," by W. D. Jones, is announced by The Chemical Publishing Co. of New York, 175 5th Ave., New York, N. Y. It has an attractive, stiff-covered binding, and contains 130 pages 6x9¾-in., the contents dealing with waxes, transparent stains and finishes, burnishing inks, colored finishes, cellulose ester finishes, etc., with latest and best formulas and methods. Price $5.00.

Makes quick connections possible.

Quick Detachable Hose Connections

Binks Mfg. Co., 3114 Carroll Ave., Chicago, Ill., has perfected a new Quick Detachable Hose Connection, which makes possible the use of many guns spraying different colors of materials with only one air hose connection. An automatic valve in the body stops the air flow when the connection stem is removed from the body. The air flow automatically is resumed when the parts are connected.

Although it is not possible to build a perfect quick detachable connection that will eliminate all air loss, yet the Binks new connection reduces air loss to the lowest amount yet known in any such connection.

"Colortread" Colors and Fills Concrete Floors

"Colortread," as announced by The Tremco Mfg. Co., 393 E. 131st St., Cleveland, Ohio, is a treated Portland Cement powder of great fineness—to be applied when mixed with water. Its close identification with the concrete over which it is spread is one reason why it combats successfully many of the difficulties encountered in painting concrete with ordinary paints. It fills the pores of the concrete with a rich, finely divided application of treated cement which sets and forms a surface of extreme density. Colortread dampproofs the floor, seals against efflorescence (such as causes so many paints to peel) and provides lasting decorative value. Eight rich and lasting colors are available — buff, tan, light gray, dark gray, green, tile, maroon, black and white.

The actual wear of traffic is sustained by a top coat of Tremco's Penetrem or by suitable floor paint, enamel, varnish or wax.

Clear Acid-Resisting Frit

The answer to a problem confronting every manufacturer of porcelain enameled signs is offered in the new Clear Acid-Resisting Frit No. 924, developed after a long period of research by the O. Hommel Co., 209 Fourth Ave., Pittsburgh, Pa.

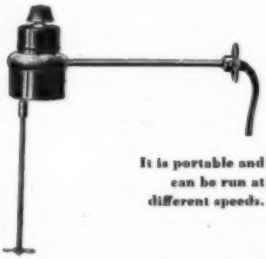
No. 924 may be applied over colored porcelain enameled signs, and because it is clear as the finest transparent glass it allows the colors to reach the eye in all their shiny brilliance. Because of its strong acid-resisting qualities it protects these colors from the ravages of the weather, particularly in industrial localities where the atmosphere is laden with acid forming gases and chemicals. It may be used on any porcelain enameled products (such as stoves and refrigerators) where acid-resisting qualities are desired.

Wrinkle Enamels

The Gilbert Spruance Co., Philadelphia, Pa., announces a complete line of colored enamels in very attractive wrinkles . . . . producing a very durable film with one coat; hides any defects in the metal. Special colors made to order if quantity warrants. Made to conform to any baking schedule.

Laboratory Stirrer

A foolproof laboratory stirrer has just been released. . . . A sturdy, well built accessory useful for making emulsions; dissolving dyes, gums and resins, waxes and bitumens, pyroxylin, cellulose ethers, casein, glue, gelatin, starch, salts. . . . Actuated by a shaded pole type motor (110 V. 60 cycle), it will run 24 hours daily without damage. It is non-sparking and will not be injured by fumes and vapors. The speed may be varied as needed by the rheostat. It fits an ordinary clamp holder or may be screwed to a shelf or wall. The shaft and propellor are furnished in chromium plate or Monel. A flexible, 6-ft., rubber-covered cord and soft rubber plug are included. . . . Offered by the Chemical Pub. Co. of N. Y., Inc., 175 Fifth Ave., New York, N. Y.



It is portable and can be run at different speeds.

Dust Bulletin Free

Dust control protects health, lessens wear and corrosion of machinery, saves dusts that have commercial value, and prevents hazards in operations considered extremely dangerous.

Much of this reform is due to the simplicity and efficiency of the modern cloth-screen dust collector, according to the Pangborn Corp. (Dust Collecting and Blast Cleaning Equipment), Hagerstown, Md. This type collector consists of a series of cloth-covered screens equally spaced side by side, and mounted in an air tight steel case.

The dust laden air enters the "dust side" of the collector and passes between the screens. The cloth retains the dust and the clean air passes through the "clean air" side to outlet.

How dust is removed from the screens and stored for collection, what size and type collectors should be used for various kinds of dust, complete data on collectors, classifiers, and spark-arrestors — all are fully described and illustrated in the Pangborn Bulletin which is now ready for free distribution.

Metals, Plastics and Finishes Exhibit in New York

On September 1, a permanent exhibit of metals and plastics will be opened at Rockefeller Center, New York, N. Y., by Metal Products Exhibits, Inc.

The exhibition will be devoted wholly to the interests of those who specify and purchase materials and parts for industrial purposes. It will feature alloys, ferrous and non-ferrous metals, plastics, finished and semi-finished parts made from these materials, finishes for metals and plastics, manufacturing processes, designs, styling, etc. It will occupy the third floor of the International Building, the latest addition to the Rockefeller Center building program.

Dipping?

Yes! In many industries unexpected economy and satisfactory finish have been secured by using Dipping Cel-u-Lak. Difficult sizes and contours have been successfully handled.

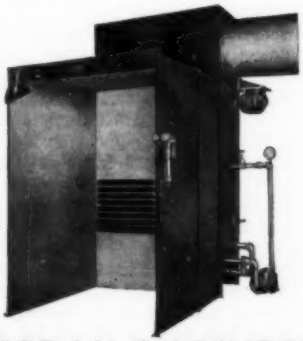
Toys, auto moldings, agricultural implements, tools, novelties, handles, brushes, are only a few of the objects where Dipping Cel-u-Lak has been effective.

Send us a dimension sketch of the article; tell us the material and the color desired and we shall give our suggestions gladly.

THE VARNISH PRODUCTS CO.

CLEVELAND, OHIO

The New SPRACO Water Washed SPRAY BOOTH



is a combination spray exhaust booth and air washing chamber—practical, modern, efficient. When cellulose lacquers and synthetic gum enamels are sprayed it eliminates the fire hazard and prevents the escape of objectionable, destructive fumes. *Write for Bulletin I-180.*

SPRAY ENGINEERING COMPANY

INDUSTRIAL FINISHING ENGINEERS

116 Central St. Somerville, Mass.

Aircraft Insignia

On Commercial and U. S. Military Airplanes

by George A. Endom

What standard and special markings are used, where they are placed, and how they are laid out, applied and protected.

According to the author, this article "embraces under one head the various details of Army, Navy and Commercial marking and insignia, and, as it is technically accurate, can be used as a standard reference, thereby saving the finisher much time and trouble. Considerable care and thought has been devoted to its preparation."

● ● ●

THE MARKING and insignia application to aircraft can be roughly divided into three classes:

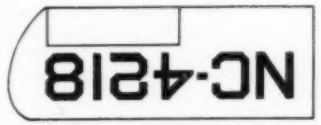
1) COMMERCIAL. This branch of aeronautics has at least two identifications applied to the outside covering: a) Department of Commerce license number (which contains the type letters) on wings and rudder; b) Manufacturer's trade-mark or name, usually applied to vertical stabilizer or fin.

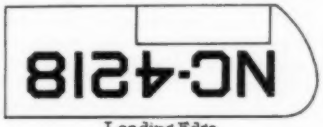
2) ARMY AIR CORPS. This branch of the military service has its designating information divided under two headings: a) Specification No. 98-24102, with latest revision letter, gives size, color, design and location of insignia to wings and rudder, with two recommended methods of application. b) Specification No. 98-24105, with latest revision letter, includes part numbers and name plates; identification of pipe lines and wiring; serial number of the airplane; code letters and numbers designating the manufacturer and model of the airplane; code letters and numbers showing the materials used in the finish and giving the date of the manufacture of the frame; strut numbering and control marking.

A rigging diagram, a fuel system diagram, and a weight data

card, all on one sheet approximately 4½x9-in. is usually furnished in sketch or blueprint form and is attached to a prominent place inside the pilot's cockpit.

3) NAVAL AND COAST GUARD. While much of the information contained in Specification No. SR-2A follows that given under the





Leading Edge

(No, these cuts are not upside down.)

(Top cut) Fig. 1—Upper right wing marking; top side shown.

(Lower cut) Fig. 2—Lower left wing marking; bottom side shown.

Typical commercial aircraft wings with Department of Commerce lettering.

two Army specifications before noted, some variations occur which, to avoid confusion, require the separate outline of this information. The differences occur and will be noted in the code marking, line marking, lettering of wings, and rudder insignia.

I suggest that readers who are interested obtain a copy of the various specifications herein mentioned to thoroughly familiarize themselves with the subject, but should this be impractical or impossible the following information is technically correct and can be used with the assurance that it will be acceptable to Army Air Corps and Naval Aircraft Inspection.

Applying Lettering and Insignia to Commercial Airplanes

The aeronautical branch of the Department of Commerce requires that all airplanes must be licensed and that *this license number must be applied to the upper surface of the right wing and the lower surface of the left wing, and to both sides of the rudder.*

Letters must be of the modified block type and their color (black or white) must sharply contrast with the surface to which they are applied. The size of the license letters and numbers should be not less than 30-in. high, and, using the letter "N" for an average, 20-in. wide, with a stroke of 5-in. On the rudder, the lettering should be approximately 3-in. wide by 5-in. high, with a ¾ to ⅞-in. stroke.

Because of the various differences of design in airplanes, there can be no set dimensions given for the inboard or outboard location of this lettering, but it should be always located centrally between the front and rear spars of the wings, with the least obstruction to vision from the air and from the ground. The tops of the letters are always to the leading edge of the wings so that the license number can be read from the rear on the right side of the airplane, and from the front on the left side of the airplane (See Figs. 1 and 2).

The rudder marking is usually placed near the top of the rudder. No other marking of any kind should be placed on the rudder, although this ruling is violated often, especially on experimental airplanes.

The manufacturer's name or trade-mark can be placed on the

vertical stabilizer or fin, or forward of the front cockpit.

Assuming that an experienced sign-painter or lettering-man is available, the license numbers can be applied quickly and neatly either with drop black in japan, or with striping lacquer. A little varnish incorporated in the japan black will act as a good binder and eliminate the necessity of protective varnishing after lettering, but where a neat durable job is required, and there is time for it, it is advisable to letter and varnish in two operations.

Often, however, occasions arise when it is necessary to use unskilled labor to apply various lettering and designs to the surfaces; or a number of similar pieces must receive the same insignia. Should this situation confront you, there are several ways to solve the problem. I'll outline some of the methods I've used and found fairly efficient.

Of course, various transfers can be used, but they are hardly satisfactory due to 1) the expense, unless ordered in quantities and 2) due to their lack of elasticity as compared to doped fabric, which expands and contracts under the stress of flight and extreme temperature changes. Consequently I avoid the use of transfers, and follow two standard methods.

Laying Out Lettering; Masking; Spraying

All large-sized and plain, one-color, lettering and designs are outlined in chalk or lamp-black (dry) in exact size and location where same are to be applied. Then the defining edges are masked, and, if a high luster finish is the base, the same material is sprayed on at low pressure with a touch-up gun. For example, if the finish coat of a high-luster job were yellow pyroxylin lacquer, I would take high-gloss black pyroxylin lacquer and spray the outlined design. If nitrate dope or synthetic enamel were used as the finish coat, I would use the same material for marking.

This is done for two reasons. First, because better adhesion and greater durability are obtained by following the basic finish scheme; second, and just as important, is that there is likely to be some over-spray or smoke around the design. If the design or lettering is the same material as the base, the over-spray can be easily removed by carefully rubbing with rubbing compound or (in the case of oil-base enamels) by pumice and oil.

In instances where the surface is fairly rough, due to not being filled or built up, the foregoing operation must be done by brush, as spraying is too hazardous; any over-spray would necessitate refinish at that point.

Making and Using Stencils

For all smaller lettering, trademarks and multi-colored designs, about the most practical method of application I have found is this:

First cut a stencil of fairly tough but flexible cardboard. Where more than one color is required, a separate stencil of each color must be cut. Incidentally, care must be exercised that proper marks are put on the stencil to accurately "register" the colors.

Next, size the back of the cut stencil with a slow-drying composition of a different base than the color materials used. For example, if a pyroxylin lacquer color is to

be applied to a pyroxylin base, use a thick varnish or any material not requiring pyroxylin thinners to remove. If an oil, japan or synthetic-base material is used, another adhesive must be applied to the stencil. I have used, with various degrees of success: varnishes, rubber cement, glue, pastes, and even thick soap solutions, according to the special requirements of the job. Much depends upon the versatility, imagination, skill and intelligence of the man responsible for the final result. A fair knowledge of the materials used and a little care will make this a quick and neat method of artistic finish to large irregular surfaces.

The stencil is pressed to the surface while the adhesive is still "tacky." The design is then sprayed through the stencil, after which the stencil is quickly removed. All edges will be sharply outlined, and as soon as the design is dry the excess adhesive can be removed with water, gasoline or special solvent which does not attack the finish. Because this excess adhesive must be removed, care must be taken in selecting the proper adhesive, for if this material requires any solvent that attacks the finish, a messy job will result.

The foregoing may seem an involved process. Once the stencils are cut it really does not take the time required to apply the same by hand. I have applied an intricate 3-color design—aluminum, red and blue—to both sides of a Verville rudder in 40 working minutes. Where more than one color is needed, each color must be thoroughly dry before the next is applied.

Part II will appear next month.

Electrical Fixtures and Metal Lamps

RECENTLY I came in contact with a new finishing material that was being used on metal lamps and electrical fixtures. I observed that it had several very

For Over 40 Years
Manufacturing Quality
GOLD and SILVER
Colored Bronze Powder
Write for Samples
The O. Hommel Co., Inc.
Pittsburgh, Pa.

Pyroxylin Lacquers — Synthetic Enamels — Insulating Varnishes—Baking Enamels
IMPERVIOUS PRODUCTS
FOR INDUSTRIAL USE
IMPERVIOUS VARNISH COMPANY
KOPPERS BUILDING, PITTSBURGH, PA.
Protective Coatings — Finishing Varnishes—Primers and Surfacers
ENAMELS IMPERVIOUS TRADE MARK IVCO PRODUCTS LACQUERS VARNISHES

good features. The following characteristics were noted:

It is made in all colors, including white, black and transparent; air dries in three hours, or may be forced dried at 180°F. for 10 minutes; stands a reduction of from one-half gallon to a full gallon of thinner to each gallon of material; application by spray only; has large covering capacity, covering solid in one coat; requires no primer or surfacer for metal.

If a metal primer is desired, the transparent is used for this purpose. It has excellent adhesion, even to galvanized iron; produces a brilliant high gloss finish which has resistance to acid, alkali and perspiration; also, it is chip and mar resistant; can be used on wood, metal, glass, stone, machinery and toys. Owing to its covering power and the percentage of thinner it will take, it makes an economical and durable finish.—J. E. GREENE.

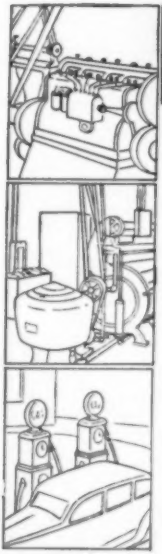
Gold, Silver & Aluminum Bronze Powders

(Continued from page 11)

brushing—with the limitation of precipitation. No special technique is required for using bronze finishes; they will work just like other colored paints or lacquers.

All Colors of the Rainbow

There are many different shades of bronze powders, such as white gold, green gold, yellow gold, orange gold, and various shades of



LARCOLOID

DURABILITY *plus* Speed!

Air-dries dust-free in a few minutes. Dry to handle in approximately one hour.

Manufacturers, of large Diesel Engines, Pumps, Motors and other products which cannot be baked, have found that a **Larcoloid** finishing system (one coat or more) insures a one-day finishing schedule.

Larcoloid gives you an ideal porcelain-like surface having excellent adhesion and resistance to acids, alkali, hot oils, salt spray, etc.

Our practical Paint Engineers will gladly help you with your finishing problems—use them.

Write for descriptive circular.

Larkin Co Inc. PAINT DIV., Buffalo, N. Y.

Manufacturers of Primers, Enamels, Varnishes, Japans, Lacquers.

copper, antique browns, reds, blues and greens. Intermediate shades are obtained by mixing different colors together. These different colors are obtained by using metals made of varying proportions of copper and zinc, and by a heat coloring and dyeing process on both gold and aluminum bases. Any color can be reproduced with a metallic finish. Bronze powders may be blended by themselves or with silver paste and colored lacquers. Aluminum bronze powders can also be produced in many shades by the dyeing process. However, silver bronzes should be designated by name, as they are not pure aluminum bronze powders. In this way we get finishes of the same shade as Butler silver, platinum, mat and French gray.

Mixing With Colored Enamels

A popular method of securing a metallic looking finish is obtained by thoroughly mixing two to eight ounces of bronze powder, or silver paste, into a gallon of colored lacquer or paint. This small amount of bronze powder gives a metallic luster to the finish. For light colored paints, aluminum paste or a light shade of gold bronze should be used; for darker colored paints, a darker shade of gold or antique copper bronze would look better. It should be understood that gold bronze powders of all the different shades should be used only for decorative purposes, such as on metal caskets and grave vaults, lighting fixtures, toys and metal novelties, and many other diversified lines.

Aluminum Bronze Finishes

While aluminum bronze powder is essentially intended for protective and maintenance painting, aluminum paint has so many ad-

ALUMINUM VEHICLES

for SPECIAL INDUSTRIAL DIPPING and BAKING APPLICATIONS

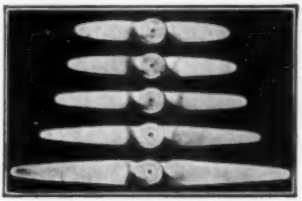
THOMPSON Aluminum Vehicles for these special applications are, of course, custom tailored to individual requirements. If you have such a problem we will be glad to put our special knowledge in this field at your disposal.

THOMPSON & COMPANY
Since 1847

Industrial and Technical Paints, Enamels and Varnishes

P. O. Box 557 N. S. Pittsburgh, Pa.

Aeroplane Type Exhaust Fan Propellors



16-in. (requires ⅛ hp. motor at 1725 rpm.)	$4.00
18-in. (requires ⅛ hp. motor at 1725 rpm.)	4.50
20-in. (requires ⅛ hp. motor at 1725 rpm.)	5.00
24-in. (requires ¼ hp. motor at 1725 rpm.)	6.00
28-in. (requires ¼ hp. motor at 1725 rpm.)	7.00
30-in. (requires ½ hp. motor at 1725 rpm.)	8.00
36-in. (requires ¾ hp. motor at 1725 rpm.)	12.00

Made of Nickel Alloy Aluminum
Machined — Finished — Balanced

Guaranteed in every respect.

Send for descriptive circular and new low price on Complete Fans or parts to make any size exhaust or ventilating fan.

UNIVERSAL MFG. CO.
324 W. 10th St. Indianapolis, Ind.

Cleaner and brighter —and at less cost

To successfully remove cutting compound from steel and brass screw machine parts was the problem of a large mid-western manufacturer.

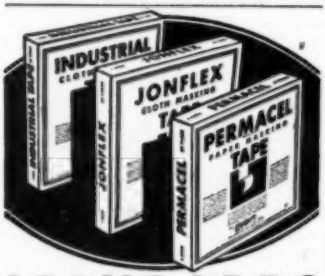
Now, using Magnus Cleaning Materials, that problem no longer exists. For, in addition to completely removing the cutting compound, Magnus gives them "a cleaner and brighter product at less cost" than their previous method.

By using Magnus Materials you can realize similar savings in time and money in your own plant. You also eliminate the hazards which go with the use of caustics and solvents and cut down the number of "rejects."

Write us your problem. We'll help you find the cleaner exactly suited to do your job satisfactorily.

MAGNUS CHEMICAL CO.
40 South Avenue Garwood, N. J.

Magnus
CHEMICAL COMPANY



STANDARDS OF THE INDUSTRY

PERMACEL The *standard* paper masking tape . . . sticks in all weathers . . . razor-sharp edges.
JONFLEX The *standard* light, fine-woven cloth tape . . . sticks in all weathers . . . razor-sharp edges.
INDUSTRIAL The *standard* heavy, coarse-woven cloth tape . . . sticks in all weathers . . . razor-sharp edges.

Send for samples. Sizes ¼" to 36" wide in 60-yd. rolls.

THE REVOLITE CORP.
A Subsidiary of Johnson & Johnson
NEW BRUNSWICK, NEW JERSEY

vantages over ordinary paints that its use is increasing every year. One of its advantages lies in its greater reflectivity; it is practically a standard finish for oil tanks, where it reflects the rays of the sun, thereby keeping the temperature lower inside the tanks and preventing some loss of volatile liquids. For the same reason, aluminum paint is desirable for the roofs of homes, street cars, buses, etc.

Aluminum paint is also recommended for maintenance painting where there are acid or gas fumes which tend to break down ordinary paints. For example, in rubber factories, the sulphur fumes from the rubber compounds do not affect aluminum paint to any extent, as the aluminum paint is essentially a thin coat of aluminum metal over the surface.

More and Better Bronze Powders

Almost every industry uses bronze powders somewhere in its process. More powder was sold in the Depression year of 1934 than during any year in the history of the business. This was particularly true with reference to industrial users of aluminum bronze powders . . . using the material in place of mill white, and as primers for wood, steel and concrete, and for smoke stacks, tanks, etc. The reflectability of aluminum paint has prompted experts to recommend it as the easiest light for workers' eyes.

All bronze powder manufacturers have improved their products during the past few years, but these improvements are more to enhance the appearance of the metallic finish than to increase its durability. Likewise, paint manufacturers have developed liquids

that hold up better, and in that way the durability of the metallic finish substantially is improved.

Spraying Filler

FILLING OF woodwork is the first important step or the foundation upon which the final finish depends. Like a building, should the foundation crumble, the complete job falls down. Improper or careless application and rubbing of filler is not considered serious, but many times here lies the root of the pinhole evil. Spraying filler provides for a proper, yet economical application.

Various grained woods require fillers of different consistencies; best results are generally obtained with a mixture of about 8 to 10-lbs. paste to the gallon. Avoid excessive air pressures; use just enough air to produce thorough atomization of the material. The range of pressure at which fillers of different consistencies are successfully applied is from 25 to 35-lbs. The material must be kept well agitated.

The surface being filled must be covered thoroughly; all pores must be filled. Pinholes may be caused by improper rubbing, premature rubbing, and to the glue used in veneering. Handle the filler coat carefully and save yourself considerable trouble.

The spray method of applying filler is a saver of time, labor and material in comparison to the brush method. A smoother coat is applied, thus easing the rubbing operation. Advantages long obtained by the spraying of stains, shellacs, varnishes and lacquers are assured in the application of filler by the spray gun method.

CREATIVE IDEAS

Not merely good finishes . . . But unique suggestions as to how they may be applied to stimulate sales

BENJAMIN FRANKLIN PAINT & VARNISH CO.
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1617

Clear Metal Lacquer

PROTECTION! — Metal Surfaces of which you're proud!

FINISH that Sells the line—preserved and protected against the dimming and dulling effects of time and exposure. Supreme in Clarity, Hardness, Long Life and Color Retention. Prevents Spotting Out.

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THE STANLEY CHEMICAL COMPANY
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EDITORIAL

Art in Industry Very Much in Demand

New creative forms in large scale production have long been overdue. Industrial designers have been behind the times, chiefly because they have been out of touch with modern movements, and even unsympathetic. They have preferred to cling to the frills and cheap ornamentations of last century, rather than to accept with courage the keen, simple lines in the machine at their command. However, thanks to individual artists, and especially to the activities of the Design in Industries Association, there has been a permeating influence which is stirring industrial designers to creative work.

Perfection in design, expressed in the ordinary commonplace household utensil, is not inconsistent with a low price. It costs practically no more in this scientific age, with abundance of cheap raw materials, to produce a perfectly designed product than one which is merely mediocre. The industrial outlook must be reconciled, therefore, with the artist's taste, and economic considerations subordinated to cultural standards.

The foregoing paragraphs are included in a Monthly Memorandum published and issued by Technical Service Library, 10 Cross Lane, London, England, under the title "British Art in Industry." However, these comments are equally if not more applicable and timely to American Art in Industry—which we are glad to note is making rapid progress.

The British memorandum quotes the Prince of Wales in a foreword to "The Conquest of Uglinesa," as follows:

". . . greater attention to the artistic side of industry is essential if our manufacturers are to develop their domestic and overseas markets. Proof is not lacking that tariffs, however high, fail to keep foreign goods out of a country if they possess qualities which the domestic article lacks. And beauty is not the least telling factor among those which account for the appeal that our articles make. And I would add an appeal for simplicity, because, in the words of a Royal Academician, 'The simplest thing, if it fills its purpose, is the right thing, and the beautiful thing.'

"A substantial improvement in the design of machine-made goods, especially of mass produced and cheap wares, will go far to raise the average level of taste, and give pleasure in countless homes. If these aims are to be achieved,

industry in this country will have to improve its organization for dealing with its artistic problems on the lines already applied to the protection of other interests."

INDUSTRIAL FINISHING is publishing, elsewhere in this issue, an article by a New York industrial designer on the subject of art and design in manufactured products. In the meantime we will appreciate any comments or expressions of interest along this line from our readers.

Look Ahead! Be Ready with What Will Be in Demand

Failure to look ahead and employ slack times to develop and perfect a certain finishing machine, which now is very much in demand, has cost several machinery manufacturers some very attractive business. When a widespread demand suddenly materialized for this machine, some of the manufacturers didn't even have descriptive literature or illustrations to show. Others hurriedly built experimental machines, placed them in service, and are now watching for "bugs" to develop before going ahead with any sales efforts. A check-up two or three years from now will reveal to each manufacturer that he has lost a number of sales because: 1) he didn't have a fully developed machine to deliver when the demand came, 2) other concerns were encouraged to enter the field because of his unpreparedness, 3) some potential buyers, finding no perfected machine available, built their own, and 4) possibly the demand for this particular machine has subsided for one or more very logical reasons.

This is just an example of what is taking place and what will occur again and again in connection with many other products. New styles, new designs, new products, new demands, and new opportunities are in the making somewhere at this very moment. The wide awake concern that finds out what's going to be in demand, then gets busy with development work, and is ready to go into production and advertise when the demand comes—this type of concern is the one that will step out and beat competition to the most profitable business.

Keep Your Copies of Industrial Finishing

The information, suggestions and ideas revealed in each issue of INDUSTRIAL FINISHING are generally exclusive as well as being practical, timely and valuable. Even though you read each copy from cover to cover, be sure to file it away for future reference. You

may want something out of it six months or a year, or several years from now—and then old copies may not be available elsewhere. Calls are continually coming in for tear sheets or entire copies of back issues, some of which can not be supplied because the demand for certain articles or copies has exhausted our limited supply. Many present-day problems in finishing and related work can be quickly solved by referring to articles or illustrations published in past issues of INDUSTRIAL FINISHING—and this fact will continue to apply in the future.

Handling Customer Complaints

Is the customer who comes bearing a complaint an asset or a liability? A surprising number of companies look upon him as an asset according to *Methods of Handling Customer Complaints*, a report recently issued by the Metropolitan Life Insurance Co. According to this report there is a growing opinion that complaints, if correctly handled, may offer opportunities for selling the customer on the company's service. It may suggest ideas for betterment of the product and service, or point the way to the development of new products and uses.

That philosophy, however, does not lead companies to encourage complaints. Modern management is seeking and finding many effective preventive measures. Sales is one of these preventives. In educational efforts of this kind, the report points out, salesmen are taught to sell service as well as merchandise, to assist the customer in selecting merchandise suited to his needs, to refrain from overselling, to cooperate with dealers in moving merchandise, to make company's policies clear regarding terms of order, returned goods, etc., to exercise extreme care in the mechanics of making out an order, and to refrain from making delivery and other promises that cannot be kept.

The report, which is based upon a survey made by the Policyholders Service Bureau, offers in some detail a discussion of the methods used by manufacturers, wholesalers and retailers in making sure that complaints receive proper at-

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THE MACLEOD CO.
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tention and that the customer and the company arrive at a satisfactory settlement. Case studies are presented, and are illustrated with reproductions of the forms used in recording the receipt and handling of various complaints.

According to the report, the "silent complaint" is an important consideration in any discussion of customer grievances. The customer who drifts away for no expressed reason, according to those contributing to the survey, presents a more complicated problem than the customer who is chronic in demanding adjustments. Members of the former group are more numerous; it is difficult also to trace the causes of misunderstanding. Many companies report making a periodic check-up of their accounts in order to handle this situation. Such investigations have been known to reveal imperfections in the company's service or products that otherwise might not have come to light.

Letters from I. F. Readers

(Continued from page 7)

interests who would be able to properly commercialize our process. It has almost unlimited possibilities in a great many fields.

Our method secures a perfectly controlled penetration of wood pulp to any degree, and can be sent completely through 2-in. thicknesses. Our method also produces a product having a surface perfectly adapted for any finish—lacquer or varnish. Having no grain, it produces ideal conditions for all frazing or millworking.

If you are acquainted with finance which might be interested in our plan, we would be very glad indeed to cooperate with you on a brokerage basis.—The Grady Mfg. Co., 250 Ely Ave., Long Island City, N. Y.

Fire Resistant Paint

With reference to the inquiry of the "G. Body Works" in June issue of INDUSTRIAL FINISHING (pages 4 and 6) regarding a fire-resistant paint for school bus floors, we believe that we can satisfy this manufacturer with a product which we are now developing. We would appreciate being brought in contact with the inquirer.—General Surfaces Co., Chicago, Ill.

Spray Equipment

We are manufacturers of wood furniture and cabinet work for the Government, and at this time we are contemplating making a change in our finishing department, in so far as spray gun equipment is concerned. It would be greatly appreciated if you would give us full information as to the different types of spray gun equipment that would be the most practical for our line of work. Will you kindly advise us whether, in your opinion, gravity or pressure feed would be the most practical? Any information you can give us will be very much appreciated.—J. Cabinet Co. (Long Wear Office and School Equipment).

Grained Steel Sheets; Silk Screen Work

In the May, 1935, issue of your publication, page 4, we note that the National Association of Purchasing Agents is inquiring for wood-grained steel sheets. We manufacture items of this nature, and would be glad for you to advise us who is interested in finding the name of a manufacturer of such a commodity. . . .

The item directly above this, namely "Silk Screen Work," by the S.C.F. Co. (Spark Plugs), makes inquiry regarding a machine. We manufacture silk screen work of all kinds on paper, wood, metal, etc., and if you will be good enough to put us in touch with these people, we will heartily appreciate same.—General Display Case Co., Inc.

Solvent Purifier

On page 12 of the August issue, 1933, of INDUSTRIAL FINISHING, you describe a solvent purifier.

A few days ago the engineer for a large concern near Dayton requested that I look up a simple method of purifying naphtha, used for cleaning metal and removing finishing material. They do not care to rig up a distillation recovery still. The purifier described would seem to be more in line with what they desire. Will you kindly give me the name and address,

or better have them write to me?—P. F. K. (Consulting Industrial Engineer).

EDITOR'S NOTE: The Solvent Purifier, used by many concerns that do metal cleaning, and dry cleaning, is a product of S. F. Bowser & Co., Inc., 1652 W. Ogden Ave., Chicago, Ill.

Spray Booth Floor

Will you kindly advise us what are acceptable materials for covering a wood floor under spray booths here in Chicago—particularly what will be acceptable to the Underwriters? If you can give us the names of firms handling or installing such materials it will be greatly appreciated.—G. D. K. & Co. (Bank Fixtures, Showcases).

EDITOR'S NOTE: According to our local Underwriters, any floor covering will be acceptable that is fireproof, waterproof and sparkproof—and it should be put in so it will drain from the booth, any liquids spilled or poured on it. On this basis, sheet zinc, aluminum, brass or copper should be acceptable, provided it is installed properly—with waterproof seams or joints, and sloping away from the booth interior and booth walls for drainage. Probably there are several concerns in Chicago that can put in such flooring, but we do not happen to know their names.

Violin Finishing

Have you any information relative to the finishing of violins, material used and process? I understand there are special materials used in the finishing. If you haven't any information, would you kindly put me in touch with some manufacturer who could supply me with the information and materials needed?—A. V. G.

EDITOR'S NOTE—Several articles on this subject were published in INDUSTRIAL FINISHING some years ago. We will be glad to get a later article on the subject from someone who is well-informed on modern violin finishing.

Squeegee Finishing

We are spraying ⅜-in. square moulding in 60 to 70-in. lengths, but this is a slow and costly process. We are desirous of using a squeegee process. . . . If possible, kindly send us all information regarding the making of a squeegee outfit to do this work. We intend to use lacquer.—H. Bros. (Fiber Products).

Makes Paint-Testing Panels

We note in your June issue of INDUSTRIAL FINISHING that the "V. S. Co." are interested in small panels for paint testing. We would be glad to get in touch with this party, as we probably could supply their needs.—D. Novelty Co. (Novelty Furniture).

Water-Soluble Resist

In the December, 1934, issue of INDUSTRIAL FINISHING, there was an article, on page 36, dealing with the use of a silk screen in sandblasting. This article was written by Bert Zahn, and in it he mentions a water-soluble resist which we understand is made by some house in Chicago. Could you give us the name of this concern? If not, can you advise us where we can get in touch with Mr. Zahn?—C. Paint Co. (Mfrs., Jobbers, Contractors).

Finishing Small Parts

Can you put us in touch with a manufacturer who could supply us equipment, material, and information on lacquer laying machines for small parts?—T. M. Pencil Co. (Advertising & Commercial Pencils).

Philippine Mahogany

Read with interest your article on finishing Philippine Mahogany (June, pages 34 and 36), which name, by the way, we believe was prohibited some years ago to being applied to the species of Philippine lumber marketed under that name, on the ruling that this wood did not belong to the mahogany family of trees.

In this part of the country (Pittsburgh, Pa.) it is some years now that we have not been offered Philippine mahogany by lumber dealers. However, there has come into the market a new plywood by the name of "Lauan," which seems to have the characteristic sponginess and fuzziness of the Philippine mahogany, although it is lighter in color—and we are interested in your article on that account. Lauan is a problem to finish.

You mention the permanent and non-grain-raising stains as the solution for finishing Philippine mahogany. Never tried these on Lauan, but tried them out and used them for a while when they first came out a few years ago, on birch, maple and gum, but discontinued on account of these stains striking very dark on soft and on cross-grained spots that occur in these woods. We would appreciate

your kindness in obtaining from the writer of the article the name of the manufacturer with whose permanent stain he was successful; also the make of filler he used.—L. D. Co. (Store Equipment Mfr.).

Coating Machine; Stains

Can you advise us who makes machinery for staining cigar box lumber; also where the material is secured that actually stains the wood? If you have any information along this line, or can secure it for us, it will be very much appreciated.—U. T. Veneer Co. (Rotary Cut Veneers).

We are interested in purchasing a lacquer coating or spreading machine, and would greatly appreciate it if you would send us names and addresses of concerns who make such machinery.—S. L. Mfg. Co.

Roxalin Opens Detroit Office

The Roxalin Flexible Lacquer Co., Elizabeth, N. J., has established an office at 1616 Kresge Bldg., Detroit, Mich. Mr. Roy St. John has been appointed technical sales representative in charge of the Detroit office, which is being maintained for the service of manufacturers in that city and the vicinity.

Classified Advertising

Advertisements under this heading 45 cents a line per insertion, minimum charge, $1.35. In estimating, calculate six words to one line, and add one additional line for heading. Use this department to obtain help, find positions, buy and sell equipment, dispose of manufacturing properties, etc.

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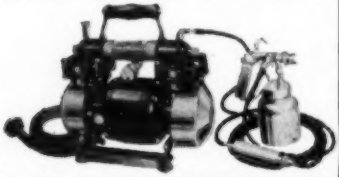

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Index to Advertisers

Advance Paint Co. ..... Third Cover
Arco Company, The 35
Ault & Wiborg Corp. ..... Back Cover

Barrett Co., The Leon J. 37
Behlen & Bro., H. .....
Berry Brothers 1

Classified Advertising 55
Commercial Solvents Corp. 25
Crown Spray Gun Mfg. Co. 56

Day & Co., James B. 23
DeVilbiss Co., The 8
Dolan & Co., V. J. 37
duPont DeNemours & Co., E. I. 28-29

Egyptian Lacquer Mfg. Co. 21

Franklin Paint & Varnish Co., Benjamin 49

Glidden Co., The 27

Hilo Varnish Corp. 5
Hommel Co., Inc., The O. 45

Impervious Varnish Co. 45

Larkin Co., Inc. 46
Lilly Varnish Co. ..... Front Cover

Maas & Waldstein Co. 31
Macleod Co., The 52
Magnus Chemical Co. 48
Milburn Co., Alex 7
Mine Safety Appliance Co. .....

Paasche Airbrush Co. 6

Revolite Corp., The 48
Rockford Varnish Co. 19
Ross Engineering Corp., J. O. 7
Roxalin Flexible Lacquer Co. ..... Second Cover

Spray Engineering Co. 41
Stanley Chemical Co. 49
Sun Oil Co. 52

Thompson & Co. 47

Universal Mfg. Co. 47-56

Valentine & Company .....
Varnish Products Co. 41

Zapon-Brevolite Lacquer Co. 2
Zapon Co., The 2